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SOIL ACIDITY (pH) SUITED TO DIFFERENT PLANTS

Whether a soil is acid or alkaline is an important factor influencing plant growth. The degree of acidity or alkalinity of soil is expressed in pH values as follows:

<u>Soil</u>	<u>p H</u>	<u>Soil</u>	<u>p H</u>
Extremely acid.....	Below 4.5	Neutral.....	6.6 to 7.3
Very strongly acid....	4.5 to 5.0	Mildly alkaline.....	7.4 to 8.0
Strongly acid.....	5.1 to 5.5	Strongly alkaline.....	8.1 to 9.0
Medium acid.....	5.6 to 6.0	Very strongly alkaline.....	9.1 and higher
Slightly acid.....	6.1 to 6.5		

Very acid soils may contain injurious quantities of iron and aluminum. On the other hand, alkaline soil may prevent absorption by plants of sufficient iron, manganese, and zinc. More than very small quantities of alkali carbonates in the soil produce strongly alkaline conditions that are usually harmful to plants. Also soil pH affects the supply of nitrogen suitable for assimilation by plants.

Many garden vegetables, flowers, and field crops grow satisfactorily at pH values near 6.5. Table 1 gives the optimum pH ranges of soils for some common plants. Plants may grow satisfactorily at higher pH values in arid than in humid areas. If available, this information has been included in the table in the columns headed "humid" and "arid"; when not available, the pH values are shown in the column headed "normal."

1/ Information supplied by R. Stanley Dyal, National Program Staff.

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PUBLIC DOCUMENT SECTION
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Table 1.--Optimum pH range for some common plants

Plant name	pH range		
	Normal	Humid	Arid
Alfalfa	6.5 to 7.5		
Artichoke, Jerusalem	6.5 to 7.5		
Asparagus		6.0 to 7.0	Up to 8.0
Aster, China	6.5 to 7.0		
Azalea, evergreen	4.5 to 6.0		
Azalea, deciduous	4.5 to 5.5		
Baby's breath	6.0 to 7.0		
Barberry, Japanese	6.0 to 7.0		
Barley	6.5 to 7.8		
Bean, castor	6.0 to 7.0		
Bean, common		5.8 to 6.5	6.0 to 7.5
Bean, lima		5.8 to 6.5	6.0 to 7.5
Bean, velvet	5.5 to 7.5		
Beet, garden		6.0 to 7.5	Up to 8.5
Beet, sugar	6.5 to 8.0		
Begonia	5.5 to 7.0		
Blackberry	5.0 to 6.0		
Bluebell	6.0 to 7.0		
Blueberry	4.0 to 5.1		
Boxwood	6.0 to 7.5		
Broccoli, sprouting		6.0 to 7.0	Up to 7.5
Brussel sprouts		6.0 to 7.0	Up to 7.5
Buckwheat	5.5 to 7.0		
Cabbage		6.0 to 7.0	Up to 7.5
Camellia	4.5 to 6.5		
Cantaloupe		6.0 to 7.0	Up to 7.5
Carnation	6.0 to 7.0		
Carrot	5.5 to 7.0		
Cauliflower	5.5 to 7.5		
Celery	5.8 to 7.0		
Cherry, sour	6.0 to 7.0		
Chrysanthemum	6.0 to 7.5		
Clover, bur	5.0 to 6.5		
Clover, crimson	5.0 to 7.0		
Clover, red	6.0 to 7.5		
Clover, white	6.6 to 7.0		
Collard	6.0 to 7.5		
Corn, field	5.5 to 7.5		
Corn, sweet	5.5 to 7.0		
Cotton	5.0 to 6.0		
Cranberry	4.2 to 5.0		
Crapemyrtle	5.0 to 6.0		
Cucumber		5.5 to 7.0	Up to 7.5
Currant	6.0 to 7.0		
Daffodil	6.0 to 6.5		
Dahlia, common	6.0 to 7.5		

Table 1.--Optimum pH range for some common plants--continued

Plant name	pH range		
	Normal	Humid	Arid
Dogwood, flowering	5.0 to 7.0		
Eggplant	5.5 to 6.5		
Endive, escarolle		5.8 to 6.6	Up to 7.5
Fennel, Florence	5.0 to 6.0		
Garlic	5.5 to 8.0		
Gladiolus	5.0 to 7.0		
Gooseberry, American	5.0 to 6.5		
Grape, fox	5.5 to 7.0		
Grapefruit	6.0 to 7.5		
Grass, meadow fescue	5.5 to 6.5		
Grass, red fescue	5.0 to 6.0		
Grass, Kentucky blue	5.8 to 7.0		
Grass, orchard	5.0 to 6.0		
Grass, redtop	5.0 to 6.0		
Grass, timothy	5.5 to 7.0		
Hibiscus, Chinese	6.0 to 8.0		
Holly, American	4.5 to 6.0		
Holly, English	6.0 to 8.0		
Holly, Japanese	5.5 to 7.0		
Horseradish	6.0 to 7.0		
Huckleberry, black	4.0 to 5.0		
Hydrangea, blue-flowered	4.0 to 5.0		
Hydrangea, pink-flowered	6.0 to 7.0		
Kudzu	5.0 to 6.0		
Leek	6.0 to 8.0		
Lemon	6.0 to 7.5		
Lespedeza, Korean	4.5 to 6.5		
Lettuce		5.8 to 6.6	Up to 7.5
Lupine	5.0 to 6.5		
Millet	5.0 to 6.5		
Mushroom	6.5 to 7.5		
Muskmelon		6.0 to 7.0	Up to 7.5
Narcissus, trumpet	5.5 to 6.5		
Oak (except willow)	4.5 to 7.5		
Oat	5.0 to 7.0		
Okra		6.0 to 7.0	Up to 7.5
Onion		5.8 to 7.0	Up to 7.5
Pansy	5.5 to 6.5		
Parsley	5.0 to 7.0		
Parsnip	5.5 to 7.0		
Pea, cow		5.0 to 6.5	Up to 7.0
Pea, English	6.0 to 7.5		
Pea, sweet	6.0 to 7.5		
Peach	6.0 to 7.0		
Peanut	5.5 to 6.6		
Pear	6.0 to 7.5		

Table 1.--Optimum pH range for some common plants--continued

Plant name	pH range		
	Normal	Humid	Arid
Pecan	6.4 to 8.0		
Peony	6.0 to 7.0		
Pepper	5.5 to 7.0		
Petunia	6.0 to 7.5		
Pine, longleaf	4.5 to 5.0		
Potato, Irish		4.5 to 7.0	About 7.0
Potato, sweet	5.5 to 6.5		
Radish	5.0 to 7.0		
Rhododendron	4.5 to 6.0		
Rhubarb	5.5 to 6.5		
Rutabaga		5.5 to 7.0	Up to 7.5
Salsify	6.0 to 7.5		
Shallot	5.5 to 7.0		
Sorrel	4.0 to 7.0		
Soybean	6.0 to 7.0		
Spinach	6.0 to 7.0		
Strawberry	5.0 to 7.0		
Sunflower	6.0 to 7.5		
Swiss chard	6.0 to 7.5		
Tobacco	5.5 to 6.5		
Tomato		5.5 to 7.0	Up to 7.5
Tung-oil tree	5.0 to 6.0		
Turnip	5.5 to 6.8		
Vetch, hairy	5.2 to 7.0		
Walnut	6.0 to 8.0		
Watercress	6.0 to 8.0		
Watermelon	5.5 to 6.5		
Wheat	5.5 to 7.0		
Zinnia	5.5 to 7.0		